

COST ESTIMATION MODEL OF PREVENTED RECURRENCES WITH ATEZOLIZUMAB IN EARLY NON-SMALL CELL LUNG CANCER IN ITALY

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BACKGROUND

- Approximately 50% of patients diagnosed with non-small cell lung cancer (NSCLC) have early-stage NSCLC (eNSCLC), including localized (stages I and II) or locally advanced (stage III) disease.
- Recurrences among eNSCLC patients are also associated with a substantial economic burden, resulting in significant health care resource utilization.
- Atezolizumab (ATZ) has been recently approved by the EMA as adjuvant treatment following resection and platinum-based chemotherapy for stage II-IIIa NSCLC patients with PD-L1 expression $\geq 50\%$, after demonstrating significant improvement in disease-free survival (DFS) relative to best supportive care (BSC) in the IMpower010 trial (NCT02486718).

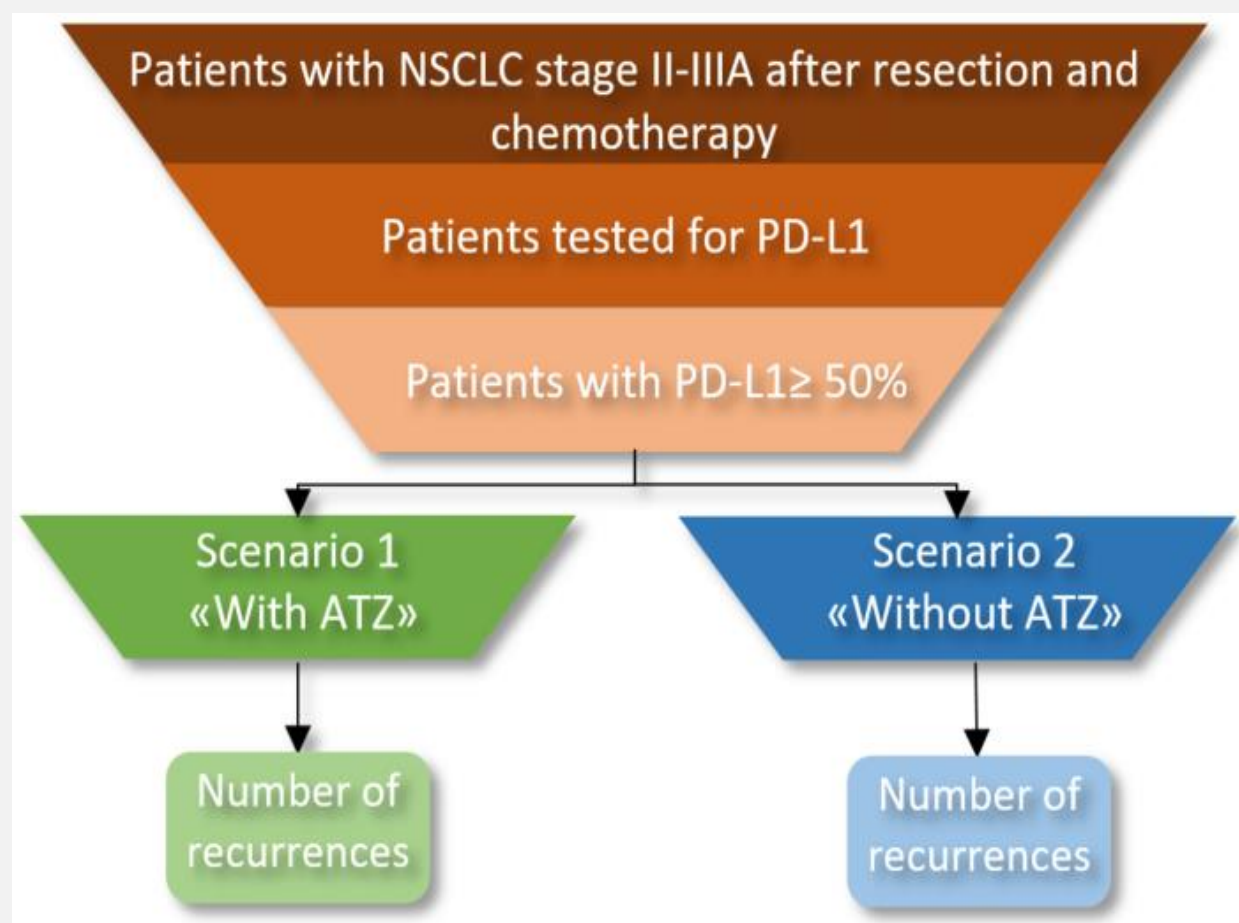
OBJECTIVES

- This study aimed to estimate the economic impact of prevented recurrences by measuring the avoided costs in the Italian population potentially eligible for adjuvant ATZ by comparing the economic scenario “with ATZ” vs “without ATZ”.

METHODS

- A published epidemiological model^{1,2} to estimate the number of NSCLC recurrences per year and followed from 2023 to 2033 was used and adapted to the Italian context (Fig.1).

Fig.1 Structure of the epidemiological model



- The probability of event (locoregional or metastatic relapse) or death, was calculated based on the DFS curves of IMpower 010 study⁶, with the assumption that recurrences occur up to year 5 according to available literature.^{7,8}
- IMpower110 trial⁹ and published literature^{10,11} were used to estimate the OS curve.
- Direct healthcare costs were sourced from an Italian real-world study about eNSCLC patients, where it was estimated that healthcare total direct costs/patient averaged EUR 23.607, in particular, in the first year after recurrence, costs averaged EUR 22.493 and EUR 29.337 in loco-regional and metastatic-recurrence patients, respectively.³
- The National Health System perspective was considered and a deterministic One-Way Sensitivity Analysis (OWSA) was performed to evaluate the uncertainty over the main parameters.

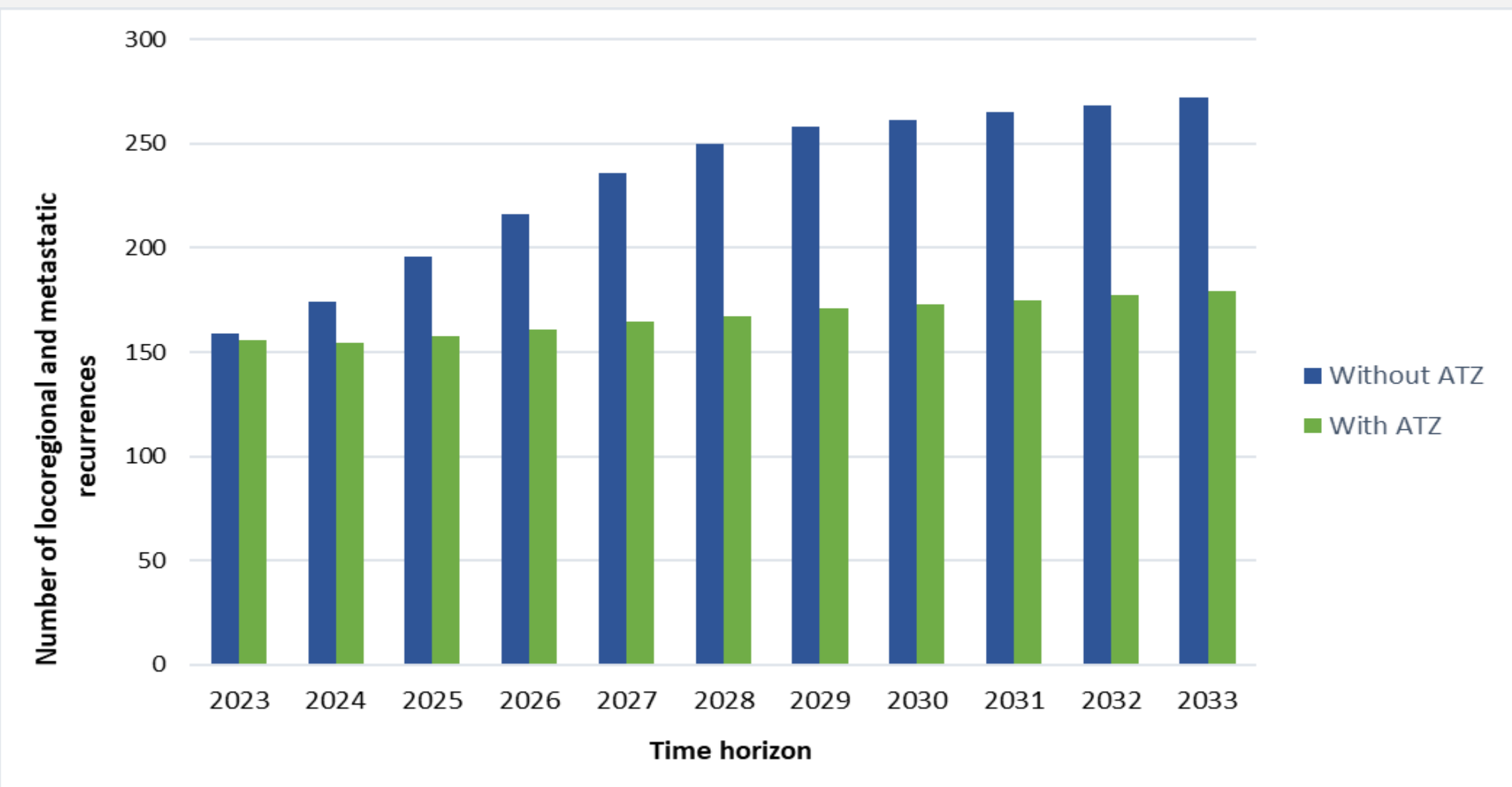
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RESULTS

- Over the period considered, 2582 eNSCLC patients with stage II-IIIa after resection and chemotherapy were estimated annually.
- Of these, 720 patients (27,9%) are potentially eligible to receive ATZ according to the approved EMA indication.
- Overall, the model estimated 2556 recurrences for the eligible patients if receiving BSC over the period from 2023 to 2033 (Fig.2).
- In the scenario “with ATZ”, which considers ATZ as adjuvant treatment option, the number of recurrences would result in a total of 1836.
- Following the introduction of ATZ, 720 cumulative events would be avoided. Of these, 111 would be locoregional and 609 metastatic. A total of 61 recurrences would be avoided within the first 3 years (Fig.2).

Fig 2. Number of recurrences per year



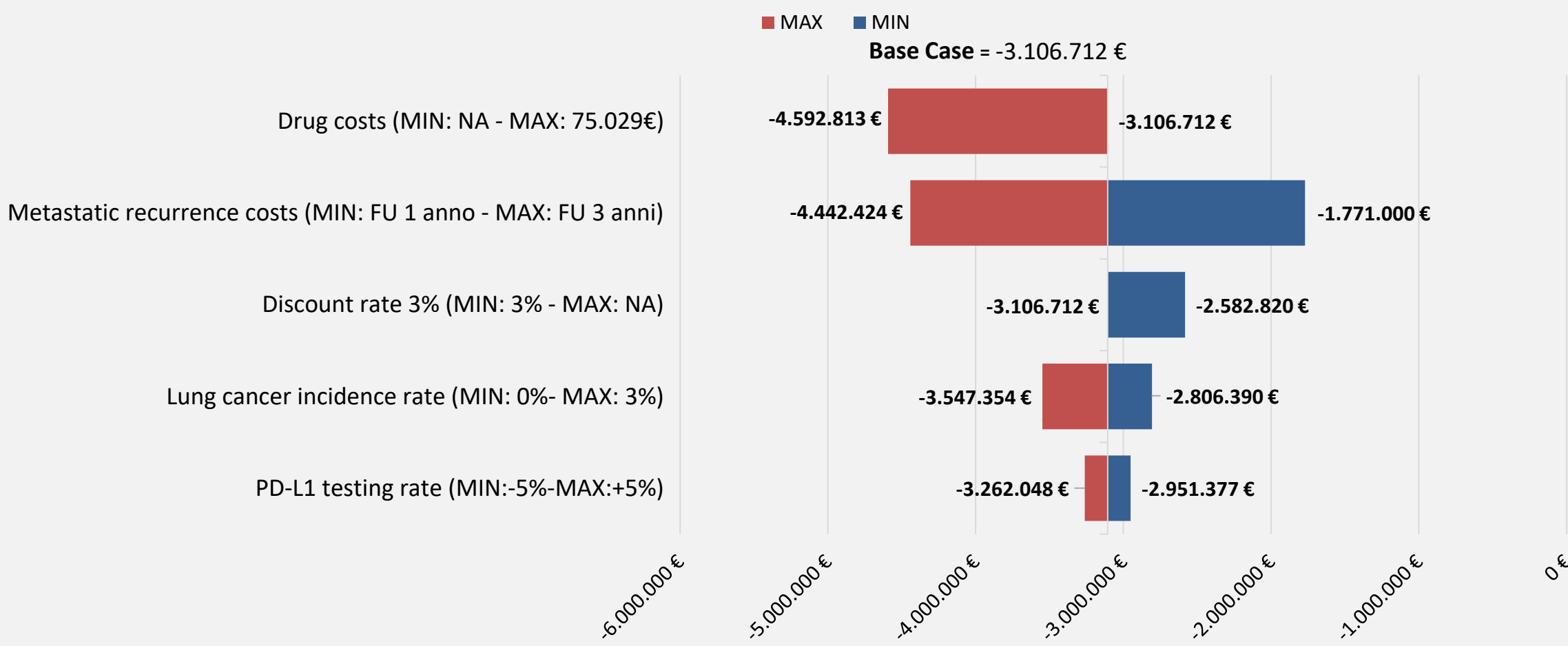
- The number of recurrences in the scenario “without ATZ” would generate a cumulative related cost of 121,26 M€ over the period considered and 11,02 M€ in any given year. (Tab.1).
- ATZ introduction, by reducing the number of recurrences significantly, would result in a cumulative cost reduction of - 34,17 M€ in direct healthcare costs from 2023 to 2033. The estimated yearly avoided cost was -3,11 M€ from the Italian NHS perspective (Tab.1).

Tab. 1 Annual avoided recurrences and costs

Results 2023-2033	With ATZ	Without ATZ	Difference
Recurrences (total)	1.836	2.556	-720
Locoregional	283	394	-111
Metastatic	1.553	2.163	-609
Associated costs (total)	87.084.205 €	121.258.039 €	-34.173.834 €
Locoregional	12.201.562 €	16.989.735 €	-4.788.172 €
Metastatic	74.882.643 €	104.268.305 €	-29.385.662 €
Annual Costs			-3.106.712 €

- The tornado chart, used to assess the effect of the most influential variables on this model, showed moderate base case changes especially due to drug cost in metastatic setting (Fig.3).

Fig.3: One-way sensitivity analysis



CONCLUSION

- Recurrences are common among eNSCLC patients and are associated with a remarkable increase in total direct healthcare cost. Adjuvant ATZ seems to prevent a relevant number of events with potential savings in recurrence-related costs from the NHS perspective in Italy. This results highlight the reduction in both the clinical and economic burden among eNSCLC patients in Italy after AIFA approval of ATZ in the adjuvant setting.